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10/821,594	04/09/2004	Mark A. Anderson	10030958-1	1551

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EXAMINER	
KARIMI, PEGEMAN	

ART UNIT	PAPER NUMBER
2629	

NOTIFICATION DATE	DELIVERY MODE
01/21/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/821,594	ANDERSON, MARK A.	
	Examiner	Art Unit	
	PEGEMAN KARIMI	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 10/22/2008 has been entered and considered by the examiner.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d) (1) and MPEP § 608.01(o). Correction of the following is required:

The terms "state-signal" and "state-signal receiver" of claim 8 are not defined in the specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-8 and 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (U.S. Patent No. 7,126,585) in view of Cheon (U.S. Pub. No. 2004/0080496).

As to claim 1, Davis teaches an optical-signal computer mouse (10), comprising:

an optical imaging array sensor (84) operable to capture images of a target surface (photo detector array 84 captures the light reflected back from the surface 50),

the optical imaging array sensor (84) being further operable to receive an optical signal (receiving signal an IR LED, col. 4, lines 15-19) from an optical-signal emitter (LED 34) communicatively coupled to an electronic system (the LED light is captured by the photo sensor array, which is connected to chip 16),

a processor (104) operable to calculate a vector (displacement value of the Δx and Δy is calculated by processor 104) value that represents a movement of the computer mouse using the images captured by the optical imaging array during a cursor controlling operation (screen pointer movement), (col. 6, lines 39-42),

the processor (104) being further operable to implement a performance characteristic value (manipulating the X and Y motion data) specified by the optical signal (LED light) received by the optical imaging sensor array (LED light is received by an array sensor 84) during programming of characteristic settings of the computer mouse (col. 7, lines 50-57 and col. 8, lines 2-3).

Davis does not mention the optical-signal emitter being external to the computer mouse. Cheon teaches the optical-signal emitter being external to the computer mouse (as can be seen in Fig. 2, the emitter emitting the external light 69 is located outside of the optical mouse 200, and the external light is sent to an optical sensor), ([0030], lines 2-5). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the external-signal emitter being external to the computer mouse of Cheon to the optical mouse of Davis because power consumption of the optical mouse can be minimized ([0030], lines 7-8).

As to claims 3 and 17, Davis teaches

an optical-signal generator (80);

an optical-signal emitter coupled to the generator (LED 34 is coupled to the LED driver); and

an optical-signal computer mouse (10) having a performance characteristic set to a first value (before the optical mouse is deliberately moved, wherein the values are $\begin{bmatrix} X=0 \\ Y=0 \end{bmatrix}$),

the computer mouse (10) including an optical imaging array sensor (84) to receive from the emitter (LED 34) an optical signal (light from LED 34) and to capture images of a target surface (col. 4, lines 16-19),

the computer mouse further including a processor (104) operable to calculate a vector value (change in X and Y directions) that represents a movement of the computer mouse (col. 6, lines 39-42) using the images captured by the optical imaging array during a cursor controlling operation (col. 7, lines 33-35),

the processor being further operable to set the performance characteristic to a second value (the new X and Y mouse location, wherein the displacement value of the Δx and Δy is calculated by processor 104) in response to the optical signal received by the optical imaging sensor array (LED light is received by an array sensor 84) during programming of characteristic settings of the computer mouse (col. 7, lines 50-57 and col. 8, lines 2-3).

Davis does not mention the optical-signal emitter being external to the computer mouse. Cheon teaches the optical-signal emitter being external to the computer mouse (as can be seen in Fig. 2, the emitter emitting the external light 69 is located outside of the optical mouse 200, and the external light is sent to an optical sensor), ([0030], lines 2-5).

As to claim 18, Davis teaches a method of programming an optical-signal computer mouse (col. 7, line 48-53), comprising:

an optical signal computer mouse (10),

generating an optical signal to be received by an optical imaging array sensor of the optical-signal computer mouse from an optical-signal emitter (sensor array 84 receives an IR LED signal from an LED 34, the LED light is captured by the photo sensor array, which is connected to chip 16 of the computer mouse),

the computer mouse (10) having a performance characteristic set to a first value (before the optical mouse is deliberately moved, wherein the values are $\begin{bmatrix} X=0 \\ Y=0 \end{bmatrix}$),

the optical signal operable to set the performance characteristic to a second value (The new X and Y mouse location, wherein the displacement value of the Δx and Δy is calculated by processor 104), (col. 4, lines 24-28).

the optical imaging array sensor (84) being operable to also capture images of a target surface (photo detector 84 captures the light reflected back from the surface 50) to calculate a vector value to determine a movement of the computer mouse

(displacement value of Δx and Δy is calculated by processor 104), (screen pointer movement), (col. 6, lines 39-42); and

displaying the optical signal on a video-display monitor (display screen) of the optical-signal emitter to be received by the optical imaging array sensor of the optical-signal computer mouse (col. 2, lines 41-49) to set the performance characteristic to the second value in response to the optical signal (the new X and Y mouse location in response to LED light 34, wherein the displacement value of the Δx and Δy is calculated by processor 104).

Davis does not mention the optical-signal emitter being external to the computer mouse. Cheon teaches the optical-signal emitter being external to the computer mouse (as can be seen in Fig. 2, the emitter emitting the external light 69 is located outside of the optical mouse 200, and the external light is sent to an optical sensor), ([0030], lines 2-5).

As to claim 19, Davis teaches a method implemented by a computer mouse (10) having a performance characteristic set to a first value (before the optical mouse is deliberately moved, wherein the values are $\begin{bmatrix} X=0 \\ Y=0 \end{bmatrix}$), comprising:

communicating a state signal identifying a state of the computer mouse to an electronic system (col. 7, lines 37-44);

receiving an optical signal from an emitter (LED light is received by an array sensor 84) communicatively coupled to the electronic system at an optical imaging array sensor of the computer mouse (The LED communicates to the host computer through a

USB interface, when the LED light is received by the sensor array 84 then the processor calculates the displacement of X and Y this information is then communicated to the host computer via Manager 106 and USB interface 102),

the optical signal operable to set the performance characteristic to a second value (the new X and Y mouse location in response to LED light 34, wherein the displacement value of the Δx and Δy is calculated by processor 104);

capturing images of a target surface at the optical imaging array sensor (photo detector array 84 captures the light reflected back from the surface 50); and

calculating a vector value (displacement value of Δx and Δy) that represents a movement of the computer mouse using the images captured by the optical imaging array (LED light 34 is captured by the sensor array 84), (col. 6, lines 39-42).

Davis does not mention the optical-signal emitter being external to the computer mouse. Cheon teaches the optical-signal emitter being external to the computer mouse (as can be seen in Fig. 2, the emitter emitting the external light 69 is located outside of the optical mouse 200, and the external light is sent to an optical sensor), ([0030], lines 2-5).

As to claim 2, Davis teaches a transmitter (102) operable to communicate a state signal identifying a state of the computer mouse to the electronic system (col. 7, lines 33-44).

As to claim 4, Davis teaches the generator (80) comprises a computer system (the LED is part of a computer system comprising the system of Fig. 5).

As to claim 5, Davis teaches the emitter comprises a video-display monitor (display screen) configured to display said optical signal to be received by the optical imaging array sensor of the optical-signal computer mouse (col. 2, lines 41-49) to set the performance characteristic to the second value in response to the optical signal (the new X and Y mouse location, wherein the displacement value of the Δx and Δy is calculated by processor 104).

As to claim 6, Davis teaches the computer mouse (10) is operable to generate a state signal (movement of the mouse signal) identifying a state of the computer mouse (it provides the displacement values calculated by the processor 104, to state the movement of the mouse).

As to claim 7, Davis teaches the computer mouse (10) is further operable to communicate the state signal (detecting motion) to the generator (the manager 106 of the computer mouse 10 controls the LED driver to turn on and emit light, col. 6, lines 16-20).

As to claim 8, Davis teaches the emitter (34) comprises a state-signal computer mouse (106) operable to receive the state signal from the optical-signal computer mouse (manager 106 receives from the processor 104 the movement detection of the mouse) and provide the state signal to the generator (col. 6, lines 16-20), (motion is being detected and under the control of manager LED driver causes the LED to turn on and emit light).

As to claim 10, Davis teaches a performance (cursor movement) associated with the characteristic (movement of the mouse) is displayable (the mouse movement causes screen pointer movement) by the generator (the LED driver causes the LED to emit light, the reflected light is then captured by the photo detector array 84, wherein the displacement of mouse is calculated by the processor and sent to the host computer for display of cursor movement on the display screen)

As to claim 11, Davis teaches the performance characteristic (movement of the mouse in X and Y directions) comprises a frame rate (the frame rate at which the image data is captured), (col. 6, lines 35-42).

As to claim 12, Davis teaches the performance characteristic (movement of the mouse) comprises an inactivity-period threshold (when no motion is detected the mouse goes into a sleep mode, wherein when no motion is detected for a period of one second), (col. 8, lines 24-28).

As to claim 13, Davis teaches the state (displacement value) comprises velocity relative to a surface (velocity is the speed and direction of movement), (tracking of movement is possible when the photo detectors in the array 84 and the frame rate at which image data is captured and digitized to show how fast the mouse can be moved in a direction and still be tracked, the tracking is accomplished by the processor 104, which compares the captured frames), (col. 6, lines 35-42).

As to claim 14, Davis teaches the state signal (movement of the mouse) comprises a characteristic having first and second values (X is the first value and Y is the second value); and

the first and second state-signal characteristic values respectively correspond to the first and second performance-characteristic values (the first performance-characteristic value is made of the initial value of X and Y, which is at $\begin{bmatrix} X=0 \\ Y=0 \end{bmatrix}$), (the second performance-characteristic value is the new X and Y mouse location, wherein the first and second performance-characteristic values result in a displacement value of the Δx and Δy, which is calculated by processor 104).

As to claim 15, Davis mentions the optical signal (LED light) specifies the second value (the new X and Y mouse location is detected wherein the displacement value of the Δx and Δy is calculated by processor 104; the new location of X and Y is calculated based on the received light from LED).

As to claim 16, Davis teaches the state signal (movement of the mouse) specifies the second value (second value is the new value of X and Y where the mouse is moved to, col. 4, lines 24-28).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis in view of Cheon and further in view of Wu (U.S. Patent No. 6,822,636).

As to claim 9, Davis and Cheon do not mention the computer mouse comprises a wireless mouse. Wu teaches the computer mouse (11) comprises a wireless optical mouse (60, Fig. 4). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the computer mouse comprising a wireless mouse of Wu to the optical mouse of Davis as modified by Cheon thereby the signal form the wireless input device is directly receive by the monitor without using the host computer so as to reduce emission power of the wireless input device and the input device and the monitor device are mutually integrated and the efficiency of the computer operation environment is changed (Col. 1, lines 47-52).

Response to Arguments

7. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

The new ground of rejection is based on the newly added prior art of Cheon (U.S. Pub. No. 2004/0080496).

Applicant in the claims argues that the independent claim 1 recites an "optical-signal computer mouse" that comprises "an optical array sensor ... , the optical-signal emitter being external to the computer mouse." Is not discloses in the cited reference of Davis. The limitation of "optical-signal emitter" is very broad and can be interpreted as any device that emits light. The LED light of Davis is an optical-signal emitter, which is located within the mouse, on the other hand, the reference of Cheon teaches an optical mouse, which can use an internal optical-signal emitting light or And external optical-signal emitting light. Cheon teaches an optical mouse using external light such as natural light or a typical electric illumination, which one skilled in the art can understand a display can be used as a typical electric illumination, so that the optical mouse can generate a signal corresponding to the current position of the optical mouse.

The element "optical-signal emitter" should be explained in a more specific approach because the optical-signal emitter is broad and can be interpreted as any device that can emit light.

Applicant argues that the amended dependent claim 5 recites "wherein the emitter comprises a video-display monitor ... in response to the optical signal" is not disclosed in the cited reference of Davis. Davis teaches an emitter that emits optical-signal (light) the emitter in order to provide an apparatus for controlling the position of a pointer requires having a display. Therefore the emitter comprises a display for displaying the position of a pointer.

Applicant argues that the amended dependent claim 8 recites "wherein the emitter comprises a state-signal receiver ... the state signal to the generator". The

specification does not provide the term "state-signal" therefore the specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. The term "state-signal" is interpreted as movement detection (motion data).

Davis teaches the emitter (34) comprises: a state signal receiver (106, which controls the LED driver 80 causing LED 34 to turn on and emit light) receiving a state signal from the optical-signal computer mouse and provide the state signal to the generator (motion data/ movement detection from the movement detection of the mouse via a processor 104 is sent to the manager 106, which causes the LED driver to turn the LED 34 on). Therefore a person skilled in the art would understand that the LED driver requires to generate a signal in order to turn the LED 34 on, which causes the mouse to generate and send motion data to the pixel array.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hines (U.S. Patent No. 6,344,846) teaches a controlled apparatus includes a light or radiation source and a retro-reflected light detector as well as means for detecting any modulation of the light emitted as a control signal for the electronic apparatus.

Inquiry

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGEMAN KARIMI whose telephone number is (571)270-1712. The examiner can normally be reached on Monday-Thursday 8:00am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pegeman Karimi/
Examiner, Art Unit 2629
January 8, 2009

/Chanh Nguyen/
Supervisory Patent Examiner, Art Unit 2629